

BRANCH PUBLICATIONS FOR 2010

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1. **Abdul-Aziz, A.**, “Strain-Tolerant Self-Sensing Environmental Barrier Coatings for SiC/SiC Ceramic Matrix Composites and Si₃N₄ Ceramics.” Supersonics Annual and Final NRA Reviews, LDE, HAE, SCE-P, AN, Ohio Aerospace Institute, Cleveland, Ohio, January 26-28, 2010. [Presentation only]
2. **Abdul-Aziz, A.**, 17th Annual NNWG Workshop, “Propulsion Health Monitoring System Development and Instrumentation,” Kennedy Space Center, Florida, February 8-10, 2010. [Presentation only]
3. **Abdul-Aziz, A., Woike, M.**, “Health Monitoring of a Rotating Disk Using a Combined Analytical-Experimental Approach,” Materials Evaluation Journal, Vol. 68, No. 3, March 2010.
4. **Abdul-Aziz, A., Woike, M., Lekki, J., and Baaklini, G.**, “Development of a Flaw Detection/Health Monitoring Scheme for Turbine Engine Rotating Components,” AIAA-2010-3329, AIAA Infotech @ Aerospace 2010 Conference, Atlanta, Georgia.
5. **Abdul-Aziz, A., Woike, M., Oza, N., Matthews, B., and Baaklini, G.**, “Propulsion Health Monitoring of a Turbine Engine Disk Using Spin Test Data,” NASA/TM-2010-216743 (SPIE 7650-45), September 2010.
6. **Adamovsky, G.**, LEW -18381-1 “High Temperature Optical Sensor” published in Tech Brief, October 2010.
7. **Adamovsky, G.**, Varga, D., and **Floyd, B.**, “Development and Performance Evaluation of Optical Sensor for High Temperature Engine Applications,” AIAA 2010-3310 Infotech@Aerospace, April 2010.
8. **Adamovsky, G., Wrbanek, S., Floyd, B., and Crotty, M.**, “Polarization Dependent Coupling of Whispering Gallery Modes in Microspheres,” in Photonics North 2010,

- eds. Schriemer, H. P. and Kleiman, R. N., Proceedings SPIE, Vol. 7750, pp. 7750Q-7750Q-14 (2010) NASA TM-2010-216902.
9. Bridges, J., **Wernet, M.**, "Establishing Consensus Turbulence Statistics for Hot Subsonic Jets," AIAA-2010-3751, 16th AIAA/CEAS Aeroacoustics Conference, Stockholm, Sweden, June 7-9, 2010.
 10. **Clem, M.M., Mielke-Fagan, A.F., Elam, K.A.**, "Study of Fabry-Perot Etalon Stability and Tuning for Spectroscopic Rayleigh Scattering," 48th AIAA Aerospace Sciences Meeting, January 2010, AIAA-2010-855.
 11. Curatolo, B.S., and **Abdul-Aziz, A.**, "Improving Data Collection And Analysis Interface For The Data Acquisition Software Of The Spin Lab At NASA Glenn," AFRL, NASA conference with HBCU/MI Historically Black Colleges and Universities/Minority Institutions; Dayton, Ohio, July 2010. [Presentation only]
 12. Curatolo, B.S., and **Abdul-Aziz, A.**, "Improving Data Collection and Analysis Interface for the Crack Detection Spin Lab at NASA Glenn," Poster Presentation, Ohio Aerospace Institute, Summer Interns Workshop, August 2010.
 13. **Eldridge, J. I.**, "High-Heat Flux CO₂ Laser Tests at NASA GRC," 2010 Joint PIWG & EVI-GTI Fall Conference, Newport News, Virginia, October 2010. [Presentation only]
 14. **Eldridge, J.I.**, and Wolfe, D.E., "Delamination-Indicating Thermal Barrier Coatings Incorporating Luminescent Sublayers Produced by Continuous Versus Interrupted Deposition," 37th International Conference on Metallurgical Coatings and Thin Films, San Diego, April 2010.
 15. **Eldridge, J.I.**, Invited Lecture, "Optical Diagnostics for TBCs," at Louisiana State University, February 19, 2010. [Presentation only]
 16. **Fagan, A.F., Clem, M.M., Elam, K.A.**, "Progress on Rayleigh Scattering Mass Flux Measurement Technique," 48th AIAA Aerospace Sciences Meeting, Orlando, Florida, January 2010.
 17. **Flatico, J.M., Krasowski, M.J., Greer, L.C., Prokop, N.F., Spina, D.C.**, Jenkins, P.P., Walters, R.J., "The MISSE-7 Communications Interface Box: Design and Operation," National Space and Missile Materials Symposium, Scottsdale, Arizona, June 28-July 1, 2010. Poster presentation.
 18. **Gyekenyesi, A.** and Haase, W., "Rotor Health Monitoring by Wireless Localized Sensing," GT2010-23651, Proceedings of ASME TurboExpo 2010-Power for Land, Sea and Air, Glasgow, Scotland, June 14-18, 2010.
 19. **Gyekenyesi, A.**, Singh, M., Smith, C., Stansberry, P., Alam, M., Vrable, D., "Development and Characterization of High Conductivity Graphite Foams for Thermal Management Applications," Ceramic Engineering and Science Proceedings - Advanced Materials for Sustainable Developments, eds, Lin, H.T., **Gyekenyesi, A.**, and An, L.; Vol. eds, Mathur, S. and Ohji, T. CESP Vol. 31, Issue 9, September 2010.
 20. **Gyekenyesi, A.**, Smith, C., and Singh, M., "Mechanical Characterization of Graphite Foams," Fourth International Symposium on Advanced Ceramics (ISAC-4), Osaka, Japan, November 14-18, 2010. Invited Lecture. [Presentation only]
 21. Heath, C. M., **Anderson, R.C., Locke, R.J.**, Hicks, Y. R., "Optical Characterization of a Multipoint Lean Direct Injector for Gas Turbine Combustors: Velocity, Fuel Drop Size, Temperature and Species Measurements," ASME Turbo Expo 2010, Glasgow, Scotland, June 14-18, 2010. NASA TM—2010-216365.

22. Heath, C.M., **Anderson, R.C.**, Hicks, Y.R., **Locke, R.J.**, "Excitation/Detection Strategies for OH Planar Laser-Induced Fluorescence Measurements in the Presence of Interfering Fuel Signal and Absorption Effects," AIAA Joint Propulsion Conference, Nashville, Tennessee, July 25-28, 2010.
23. Jenkins, P.P., Walters, R.J., Vasquez, J.A., LaCava, S.N., Skalitzky, R.G., Specht, T.J., Trautz, K.M., Braun, W.R., Mahony, D.R., **Krasowski, M.J.**, **Flatico, J.M.**, **Prokop, N.F.**, **Greer, L.C.**, **Spina, D.C.**, Caldwell, R.A., Engelhart, J.P., "Overview of the 7th Materials on the International Space Station Experiment," National Space and Missile Materials Symposium, Scottsdale, Arizona, June 28- July 1, 2010.
24. Khavaran, A., Kenzakowski, D.C., **Mielke-Fagan, A.F.**, "Hot Jets and Sources of Jet Noise," International Journal of Aeroacoustics, Vol. 9, No. 4 & 5, pp. 491-532, June 2010.
25. **Krasowski, M.J., and Prokop, N.F.**, LEW-18461 "Method and Circuit for In-Situ Health Monitoring of Solar Cells in Space," Tech Briefs, October 2010.
26. **Krasowski, M.J., Flatico, J.M., Greer, L.C., Prokop, N.F.**, "Smart Power Supply for Battery Powered Systems," NASA Tech Brief Magazine, March 1, 2010.
27. Kulesza, Z., **Sawicki, J.T.**, "Auxiliary State Variables for Rotor Crack Detection," Journal of Vibration and Control, SAGE Publications, October 2010, doi: 10.1177/1077546309360050.
28. **Lekki, J., Bencic, T., Gyekenyesi, A., Adamovsky, G., Hunter, G., Tokars, R., and Woike, M.**, "Aircraft Engine Sensors for Integrated Vehicle Health Management," JANNAF, May 3-7, 2010.
29. **Lekki, J.D., and Bencic, T.**, IVHM Milestone Documentation: Annual Detection Assessment in editing, one portion presented at the JANNAF May 2010 and the other complete portion will be published as NASA TM.
30. Lin, H.T., **Gyekenyesi, A.**, and An, L., eds, Ceramic Engineering and Science Proceedings – Advanced Materials for Sustainable Developments, CESP Vol. 31, No. 9, September 2010, Vol. eds. Mathur, S. and Ohji, T.
31. **Mielke-Fagan, A.F., Clem, M.M., Elam, K.A.**, "Rayleigh Scattering Measurements Using a Tunable Liquid Crystal Fabry-Perot Interferometer," 27th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, Chicago, Illinois, AIAA-2010-4350, June 2010.
32. **Mielke-Fagan, A.F., Clem, M.M., Elam, K.A.**, Hirt, S.M., "Progress on a Rayleigh Scattering Mass Flux Measurement Technique," 48th AIAA Aerospace Sciences Meeting, Orlando, Florida, paper no. AIAA-2010-856, January 2010.
33. Neudeck, P.G., **Prokop, N.F.**, **Greer, L.C.**, Chen, L.Y., **Krasowski, M. J.**, "Low Earth Orbit Space Environment Testing of Extreme Temperature 6H-SiC JFETs on the International Space Station." Eighth European Conference on Silicon Carbide and Related Materials, Oslo, Norway, Aug. 29-Sept. 2, 2010.
34. **Prokop, N.F., Greer, L.C.**, Chen, L.Y., Neudeck, P.G., **Krasowski, M.J.**, "Overview of the NASA GRC MISSE-7 Silicon Carbide JFET Experiment Package." 2010 Space and Missile Materials Symposium, Scottsdale, Arizona, June 28-July 1, 2010. Poster presentation.
35. **Roth, D.J.**, Jacobson, N.S., **Rauser, R.W.**, Wincheski, R.A., Walker, J. L., **Cosgriff, L.A.**, "Nondestructive Evaluation (NDE) for Characterizing Oxidation Damage in

- Cracked Reinforced Carbon–Carbon,” International Journal of Applied Ceramic Technology, Vol. 7, No. 5, pp. 565 - 696, September/October 2010.
- 36. **Roth, D.J.**, NDEWIP V3.0, New Technology Report, May 2010.
 - 37. **Roth, D.J.**, Platform for Post-Processing Waveform-based NDE v2.0, NASA Tech Brief, October 2010.
 - 38. **Roth, D.J., Rauser, R.W., Abdul-Aziz, A.**, Burke, E., Studor, G., Davis, B.A., Zhang, S., Cotton, R., Marsh, M., “Recent Improvements in Analysis and Display of NDE Data at NASA,” Review of Progress in Quantitative NDE, San Diego, California, July 18-23, 2010.
 - 39. **Roth, D.J., Rauser, R.W., Abdul-Aziz, A.**, Cotton, R., Burke, E., Zhang, S., Marsh, M., Davis, B.A. and Studor, G. F., “Recent Improvements In Analysis And Display Of NDE Data At NASA,” presented at the 37th Annual Review of Progress in Quantitative NDE, San Diego, California, July 2010.
 - 40. **Roth, D.J., Tokars, R.P., Martin, R.E., Rauser, R.W., Aldrin, J.C., Schumacher, E.J.**, “Ultrasonic Phased Array Inspection Test Simulations of Welded Components at NASA,” Materials Evaluation, Vol. 67, No. 1, pp. 60 – 65, January 2009; also NASA TM 216090 March 2010.
 - 41. **Roth, D.J., Tokars, R.P., Martin, R.E., Rauser, R.W., Aldrin, J.C., Schumacher, E.J.**, “Ultrasonic Phased Array Inspection Experiments and Simulations for an Isogrid Structural Element with Cracks,” 36th Annual QNDE Conference, Kingston, Rhode Island, July 2009. Abridged version published in QNDE Proceedings, April 2010.
 - 42. **Sawicki, J., Storozhev, D., and Lekki, J.**, “Exploration of NDE Properties of AMB Supported Rotors for Structural Damage Detections,” Proceedings of ASME Turbo Expo 2010. June 14-18, 2010 Glasgow, United Kingdom.
 - 43. **Sawicki, J.T., Friswell, M.I., Kulesza, Z., Wroblewski, A., and Lekki, J.D.**, “Detecting Cracked Rotors Using Auxiliary Harmonic Excitation,” Journal of Sound and Vibration, Elsevier Ltd., Vol. 330, pp. 1365-1381, 2011.
 - 44. Singh, M., Asthana, R., Smith, C., and **Gyekenyesi, A.**, “Integration of Graphite Foams to Titanium for Thermal Management Applications,” Ceramic Engineering and Science Proceedings - Advanced Materials for Sustainable Developments, eds, Lin, H.T., **Gyekenyesi, A.**, and An, L.; Vol. eds, Mathur, S. and Ohji, T., CESP Vol. 31, No. 9, September 2010.
 - 45. Singh, M., **Gyekenyesi, A.**, Smith, C., and Asthana, R., “Bonding and Integration of Graphite Foams to Metallic Systems for Thermal Management Applications,” Fourth International Symposium on Advanced Ceramics, Osaka, Japan, November 2010.
 - 46. **Tokars, R., Lekki, J., Jaros, D., Riggs, M.T., Evans, K.P.**, “Improved Signal Processing Technique Leads to More Robust Self Diagnostic Accelerometer System.” AIAA ASM 2010.
 - 47. Walker, J., **Roth, D.J.**, Johnston, P., “NDE of Fiber Reinforced Foam Composite Structures for Future Aerospace Vehicles,” invited presentation, ASNT Fall Conference and Quality Testing Show, Houston, Texas, November 2010.
 - 48. **Wernet, M.P., Wolter, J., Locke, R.J., Wroblewski, A., Childs, R., Nelson, A.**, “PIV Measurements of the CEV Hot Abort Motor Plume for CFD Validation,” AIAA-2010-1031, 48th AIAA Aerospace Sciences Meeting, Orlando, Florida, January 4-7, 2010.
 - 49. **Woike, M., Abdul-Aziz, A., Bencic, T.**, “Investigation of a Microwave Blade Tip Clearance Sensor for Propulsion Health Monitoring,” 56th ISA International

Instrumentation Symposium, Non-Contact Stress Measurement Sensing/Blade Tip Timing Workshop, May 2010.

50. **Woike, M.R., Abdul-Aziz, A.**, "Fault Detection Experiments on Simulated Turbine Engine Disks," International Society of Automation (ISA), the 56th International Instrumentation Symposium, Rochester, New York, May 10-14, 2010.
51. **Woike, M.R., Abdul-Aziz, A., and Bencic, T.**, "A Microwave Blade Tip Clearance Sensor for Propulsion Health Monitoring," NASA/TM-2010-216736 (AIAA-2010-3308), June 2010.
52. **Woike, M.R., and Abdul-Aziz, A.**, "Crack Detection Experiments on Simulated Turbine Engine Disks in the Glenn Research Center's Rotordynamics Laboratory," AIAA Aerospace Sciences Meeting , Orlando, Florida, January 4-7, 2010. AIAA-2010-587 also NASA TM 216239.
53. Wolter, J., Childs, R., **Wernet, M.**, Nelson, A., Melton, J., "Flow Field Characterization of an Angled Supersonic Jet Near a Bluff Body," AIAA-2010-4829, 28th AIAA Applied Aerodynamics Conference, Chicago, Illinois, June 28 – July 1, 2010.
54. **Wrbanek S.Y.**, LEW-18539-1 "Measurement of the Length of an Optical Trap," Tech Brief, October 2010.